

CLAIMS:

1. An acidic, water-thinnable composition suitable for rust conversion and corrosion inhibition, comprising alkyd resins, an acid, iron oxide pigment, a stabilizer, metallic zinc or zinc-containing compound and at least one inorganic salt of an alkali or earth alkali metal.
2. A composition according to claim 1 which is applicable at temperatures below 30°C.
3. A composition according to claim 1, wherein the acid is phosphoric acid.
4. A composition according to claim 1, wherein said at least one inorganic salt is selected from chlorides, phosphates and sulfates of alkali and earth alkali metals.
5. A composition according to claim 4, wherein said at least one inorganic salt is selected from NaCl, MgCl₂, MgSO₄, and mixtures thereof.
6. A composition according claim 1 having a minimal film forming temperature (MFFT) of 5°C or less.
7. A composition according to claim 6 having a minimal film forming temperature (MFFT) of 0°C.
8. A composition according to claim 1, which is water based.
9. A composition according to claim 1 which is thermally stable up to at least 250°C.
10. A composition according to claim 9 which is thermally stable up to 400°C.
11. A composition according to claim 1 having a pH of less than 5.
12. A composition according to claim 11 having a pH between 2.5 and 3.5.
13. A composition according to claim 1 suitable for treating rust layers of more than 20µm thickness.
14. A composition according to claim 13 suitable for treating rust layers of more than 50µm thickness.

15. A composition according to claim 1, wherein said zinc-containing compounds include at least one of Zinc molybdenum orthophosphate hydrate and Zinc aluminum polyphosphate hydrate.
16. A composition according to claim 1, further comprising at least one
5 compound selected from the group consisting of additives, fillers, surfactants, thickeners and additional pigments.
17. A composition according to claim 1, wherein the alkyd resins are water emulsions of acrylic resins, vinyl resin polymers, and mixtures thereof.
18. A composition according to claim 17, wherein the alkyd resins have solid
10 content of 45% to 55%.
19. A composition according to claim 1, wherein the iron oxide forms at least 2% (w/w) thereof.
20. A composition according to claim 19, wherein the iron oxide forms 7% (w/w) thereof.
- 15 21. A composition according to claim 1, wherein the stabilizer is selected from the group consisting of propanol, propylene glycol, anhydride ions of phosphor and fluorine, and mixtures thereof.
22. A composition according to claim 16, wherein the fillers are selected from the group consisting of silicon oxide, barium sulfate, and mixtures thereof.
- 20 23. A composition according to claim 1 further comprising surfactant compositions.
24. A composition according to claim 16, wherein the thickener is hydroxyethylcellulose.
- 25 25. A composition according to claim 16, comprising 20%-60% alkyd resin, 2%-5% phosphoric acid, 10%-30% pigments, 3%-20% fillers, 0.1%-1% stabilizer, 2%-3% metallic zinc or zinc-containing compound, 0.1%-0.5% thickener, 1%-3.5% additives, all percentages w/w, and the balance water.
26. An object that is coated with a composition according to claim 1.
27. An object that is painted with a composition according to claim 1.

28. An object that is coated with a composition according to claim 1 and an additional paint layer.

29. An object according to claim 28 wherein said paint layer is selected from epoxy-based paint, polyurethane-based paint, alkyde-based paint and acrylic paint.

30. An object according to claim 26, which is made of iron, cast iron, aluminum, steel, galvanized steel or galvanized iron.

31. A method for protecting an object from corrosion and converting rusty portions thereof into non-corrosive portions, the method comprising coating the object with a composition according to claim 1.

32. A method for treating a rusty object before painting, the method comprising: washing the object with a suitable cleaning solution; and coating the washed object with at least one layer of a composition according to claim 1.

33. A method according to claim 32, wherein said cleaning solution is selected from water, seawater and detergent containing water.